

PROPOSAL OF DEVELOPMENT AND PROMOTION FOR SCENIC ROADS IN KOREA

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ABSTRACT

The road is regarded as an essential facility for national economy, social and cultural life. Road systems in Korea consist of various roads (Expressway, National highway, Provincial road and City road etc.) that are connected mutually across the country. Total lengths of all roads in Korea come to approximately 104,236km as of the end of 2008.

Until now, the road construction and investment have been focusing on quantitative expansion. Besides, the quality of the road environment is in poor condition. Road safety and traffic flows have been always big issues as they are regarded as significant factors in terms of the quality of road, but also scenic roads that are considered as an important measure in terms of the quality of country's culture has been still remaining low quality.

As the needs for the quality of life and a pleasant natural environment have been growing in Korean, the pilot projects for scenic roads have been established following 'Mater Plan'. This paper suggested some idea and discussed for the future development plan about scenic roads.

1. INTRODUCTION

The road is regarded as an essential facility for national economy, social and cultural life. Road systems in Korea consist of various roads (Expressway, National highway, Provincial road and City

road etc.) that are connected mutually across the country. Total lengths of all roads in Korea come to approximately 104,236km as of the end of 2008.

Until now, the road construction and investment have been focusing on quantitative expansion. Besides, the quality of the road environment is in poor condition. Road safety and traffic flows have been always big issues as they are regarded as significant factors in terms of the quality of road, but also scenic roads that are considered as an important measure in terms of the quality of country's culture has been still remaining low quality.

That is, the road requires to be changed into resting space, observatory space and cultural space as the area of daily life instead of the infrastructure playing a role of simple passage for movement in soulless environment, but it is not matching such expectation.

Recently, there is a growing interest in the promotion of SOC (Social Overhead Capital) facility and architectural culture to stretch the nation's position to culturally advanced country by improving national life quality and securing the level of national land infrastructure. On the other hand, the use of road for taking advantage of leisure hours tends to increase owing to 5 day workweek system and well-being craze. Furthermore, it appears the road has desperate requirement for a daily life space and a role of media for regional activation.

In the advanced nations, they have been interested in the scenic road from a long time ago, promoting a variety of scenic road that may enhance aesthetic level of the road. Above all 'National Scenic Byways Program' of U.S.A is the program implemented by FHWA that provides a variety of services to the drivers exposing the image of regional landscape of road (roadscape) as well as preserving the road. In Japan, they are currently promoting the 'Scenic Byway Japan' project step by step.

In Korea, following the increased understanding about roadscape as well as the requirement of pleasant natural environment along with the recent improvement of life quality entering the 21st century, the necessity of preserving the valued scenic recourses is gradually disseminated throughout the nation. Therefore it is necessary to build the road environment so that the road can be understood as one of SOC facilities familiar to and liked by people by developing it into the scenic road to its characteristic along with its advertisement.

For this, the Ministry of Land, Transport and Maritime Affairs (MLTM) has established the master plan for scenic road development for the national highway, and then implement it step by step. This paper describes the background of promoting such scenic road and related matters, master plan for scenic road in detail, future promotional direction and developmental method.

2. ROADScape AND SCENIC ROAD

2.1 ROADScape CONCEPT AND ITS CONSTITUENT ELEMENTS

Scenery is materialized when a certain subject (subject of scenery) is seen by the human (scenery subject), so generally it is not called scenery when a certain individual subject is seen. That is, it

requires the proposition of multiple subject matters or the entire subject group being seen. Another important thing about the scenery is the mental phenomenon of the human. The scenery is not pure physical phenomenon of the subject matter handled in chemistry or physics. There are the elements such as image of the human against the target created through the space and time experiences being seen, expression of like-dislike emotions, etc. The scenery is evaluated with these elements overlapped on the act of seeing, and therefore the scenery is the overall observation against the target and the subsequent mental phenomenon materialized through it.

Accordingly the concept of scenery can be said to bear the meaning related with the work of natural ecosystem, human activity, etc. that may be inherent in 'the scenery to be seen' primarily seen or the scenery seen secondarily. Here, the meaning of 'seen' should not be thought to mean the visual aspect, but to be understood as the scenery recognized through five senses of human body.

Roadscape, the scenery where the road occupies the center (key subject) of scenery, should be thought to create a new value by enhancing aesthetic and ecological value matched with surrounding environment as well as the function of road. Therefore, generally it should be understood through the comparison with the concepts of nature, scenery, environment, place, geography, ecology, etc.

The type of roadscape is divided into scene (static scenery), sequence scenery (moving scenery) according to whether the view-point is fixed or not as shown in Table 1.

Table 1. Classification of Roadscape

Classification		View-point
Scenery On the road (interior)	Scene (Static scenery)	<ul style="list-style-type: none"> •View-point of a pedestrian on a sidewalk •View-point of a driver when the vehicle is stopped •View-point of the road user who is resting
	Sequence (Moving scenery)	<ul style="list-style-type: none"> •View-point of driver/passengers, of moving pedestrians (on motorcycle, bicycle etc.) •View-point of the driver during driving •View-point of the passenger in the vehicle
Scenery Off the road (exterior)	Scene (Static scenery)	<ul style="list-style-type: none"> •View-point of the resident in the surrounding area •View-point of people who observe from near and for distances

The elements of constituting the roadscape include, as shown in Table 2, road, border, distant view, etc., the harmony of which may create excellent scenery.

The view-point against the roadscape exists in and out of the road, and therefore the scenery varies depending on there changes. In case of the view-point inside the road, composition of cross section, pavement surface, miscellaneous facilities, etc. become the center of the scenery to be designed, while for the view-point outside the road, slope surface, tunnel, bridge, etc. become the center of the side plan. Therefore, the consideration of both interior scenery and exterior scenery is essential in the design of road scenery.

Table 2. Constituent Elements of Roadscape

Constituent Elements		Main Elements
Road Elements	Main roads	·Road geometrics, Composition of transverse planes (Cross section), Road structures (Bridge, Tunnel etc.)
	Miscellaneous facilities	·Guard rails, Road lighting, Road signs, Traffic safety signs, Roadside foliage (tree, grass, flower etc.)
	Roadside objects	·Electric poles, Advertising boards, Vents opening (subways etc.), Electric control boxes, etc
Border Elements	Surrounding facilities	·Gas stations, Rest areas, Bus stops ·Shopping mall, Residential housing, Factories, Automobile related facilities · Farms (Rice paddies, etc), Streams, Landscape facilities
Distant View Elements	Natural elements	·Mountains, Rivers, Lakes, Coasts, Forests, etc.
	Artificial elements	·Long span bridges, Tunnels' portal, Steel Towers, Large structures, High voltage line

2.2 CONCEPT AND TYPE OF SCENIC ROAD

The subject of scenery is targeted against all the objects seen by the human. Generally the objects that become the center of scenery can be divided into the environments surrounding them. The object centered in the middle is called the Main Subject of the scenery. The Main Subject can be divided such as Urban Scenery for architecture in urban areas, mountain scenery for mountains or valleys in mountainous places, rural scenery for the paddy fields or farms in rural areas, street scenery for streets, lighting facilities, and pedestrian facilities in urban areas. Other areas include river scenery, coastal scenery, lake scenery, structural scenery, natural scenery, etc. as the cases may be.

In South Korea, the concept of the scenic road is defined as the road with excellent roadscape well-matched with a variety of elements. Such elements include borders and distant views. This defines road scenery especially those equipped with pleasant environments where people may enjoy the natural or artificial elements in the vicinity. The objective of the Scenic Road Development Project is to make the environment of the desired road to walk on and the desired road to stay on for the driver, pedestrian, residents, etc.

The scenic road is divided into 10 types depending on how it is seen in relation with the surrounding environment as the main subject (scenic resource element). This was done in consideration of the roadscape characteristics depending on the scenic resource elements in accordance with the basic standard of classification on the national land scenery previously established in South Korea. The type of scenic road is shown in Figure 1.

3. PRESENT STATUS OF DOMESTIC AND OVERSEAS SCENIC ROADS

3.1 DOMESTIC PROJECTS OF SCENIC ROAD

1) A Selection of Beautiful Roads (2002), 100 Most Beautiful Roads of Korea (2006): MLTM implemented the 1st Selection of Beautiful Roads (2002) to build the condition enabling to suggest

environment-friendly and functional direction of road construction well-matched with socio-economic development and lead to the creation of unique road so that people may have interest in and affections for the roads. Later in July 2006, 100 Most Beautiful Roads of Korea were elected and announced for the purpose of widely propagating the beauty and superiority of the roads.

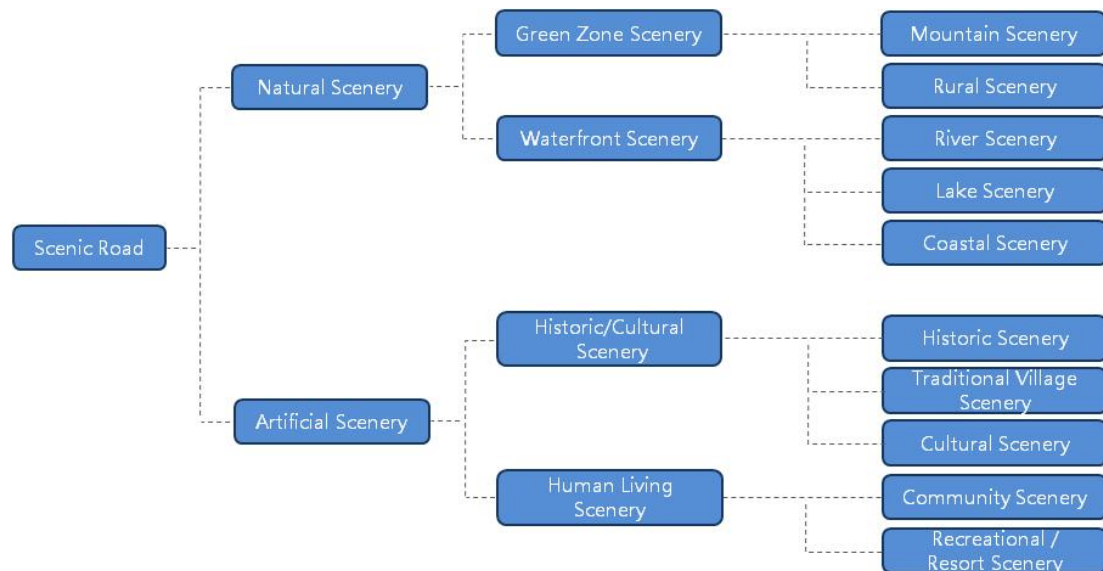


Figure 1. Type of Korea's Scenic Road

2) Associated Projects of Regional Construction Management Office under control of MLTM: Under the vision of 'Happy Road 2010', Wonju Regional Construction Management Office has been promoting the project under the task name of 'Securing the Excellent Scenic Resting Place' since 2006 in order to secure the resting space in the area with superb scenery being worthy of recess in terms of convenience. This project is being promoted in such a manner of adding the budget allocated item to include resting place installation in the national highway expansion/pavement projects and national highway management affairs where one resting place including the convenience facility such as parking space, observation platform, etc. to be installed per 5km on one-way basis, which can be added in case of the area with scenic beauty. Iksan Regional Construction Management Office is promoting the Environment-friendly Green Road Pilot Project where the road users can drive, see, enjoy and rest.

3) VIP Route Remodeling: Gyeongbu Expressway - Osan ~ Yangjae Section (37.9km) is the road of historical symbolism that it was the nation's first expressway and marks the highest usability of all, while user's satisfaction is low in terms of function and scenery. Therefore, Korea Highway Corporation established the remodeling plan that reflects the road consistency and latest function/beauty as a model case in this section intended to re-produce VIP section that may represent domestic expressway. VIP section is the one playing a role of VIP (Very Important Path) and being

used by the largest number of customers with the attitude of serving all the customers as VIP (Very Important Person) in the function, importance, symbolism, etc of the applicable section, which is planned to be promoted in 2009.

3.2 EXAMPLE OF OVERSEAS SCENIC ROAD PROJECT

1) Scenic Byway America: FHWA has been operating National Scenic Byways Program (NSBP) that is intended to enhance the road quality by selecting the road with excellent scenery throughout U.S.A since 1992, highlight the image of the region with roadscape, and specializing the roadscape area. NSBP is divided into AAR (All-American Road) and NSB (National Scenic Byway). To be selected, there are 6 kinds of evaluation standards such as archaeology, cultural, historic, natural, recreational, scenic etc. In case of AAR, it requires including a variety of elements out of the 6 elements constituting the scenic road, or unique element that doesn't exist in the other area. In case of NSB, it requires 1 element out of 6 constituting the scenic road. Currently 27 and 99 sections (total 126 sections) are designated as AAR and NSB respectively. This program where everybody can attend requires the positive cooperation of the local autonomous body, which is being promoted through a variety of media.

2) Scenic Byway Japan: Japan started the 100 Most Beautiful Roads of Japan project to enhance the meaning and significance of the road by selecting the unique roads scattered throughout the nation and widely introducing them to people commemorating the enactment of 'The Day of Road' (Aug. 10 – The day when the 1st Road Improvement Plan started for its implementation for the first time in Japan on the 10th of August in the 9th Year of Emperor Daisho's Regime). For this project, they fixed a keyword every year and selected the road in compliance with such meaning out of the roads including unpaved roads, paved roads, main trunk roads, roads inside the sightseeing places, etc. since 1986. The keyword was designated in variety like history and friendliness in 1986, beauty and mobility in 1987, etc. Since then, Scenic Byway Japan project was carried out starting from Scenic Byway Hokkaido, similar to Scenic Byway America in its contents. This program focuses on the use of scenery, nature, history, culture, leisure resources, etc. to the maximum subsequently intended to build beautiful scenery, active community, and attractive sightseeing space. Later such project has been expanded to nationwide scale of Japan in the name of 'Scenic Byway Japan'. This program is carried out in such a manner of organically linking the creation of beautiful national scenery, activation of regional community and promotion of tourism for the rehabilitation of the national land culture rather than simple preservation, protection and activity for cultural resources, which is that a variety of entities cooperate with the road centered.

4. DEVELOPMENT OF SCENIC ROAD PROJECT FOR NATIONAL HIGHWAY IN KOREA

4.1 MASTER PLAN FOR SCENIC ROAD IN NATIONAL HIGHWAY

1) Summary of the Study on the Establishment of the Master Plan

In a series of flux of times afore-mentioned, the MLTM carried out 'The Study on the Establishment of a Master Plan for Developing Scenic Roads on National Highways' for the period between Nov. 2006 and Dec. 2007 through The Korea Institute of Construction Technology (KICT). The study is intended to establish the concept of scenic roads and the methodology and technical matters for its implementation. Our goal is to establish The Scenic Road Development Plan and promote the representative pilot project as we carry out future scenic road developments based on data and accomplish the improvement of road environments. The subject sections to be recommended as scenic roads includes the desired road to walk, drive, and stay on with natural, historic/cultural, and life value along the routes with excellent roadscape. The subject section of the project includes current scenic roads and ones that can be placed as the scenic road through the creation of roadscape.

The range of development of scenic roads can be divided into ① the case of intending the qualitative improvement of the scenery, simultaneously with the improvement of existing roads, ② the case of targeting the construction of high-quality roads with new road planning, ③ and the case of targeting positive scenery creation at the time of newly built or improving the roads that become the symbol of urban areas. This master plan is related the case #1 mentioned above. The concept of scenic improvements of existing roads are illustrated Figure 2.

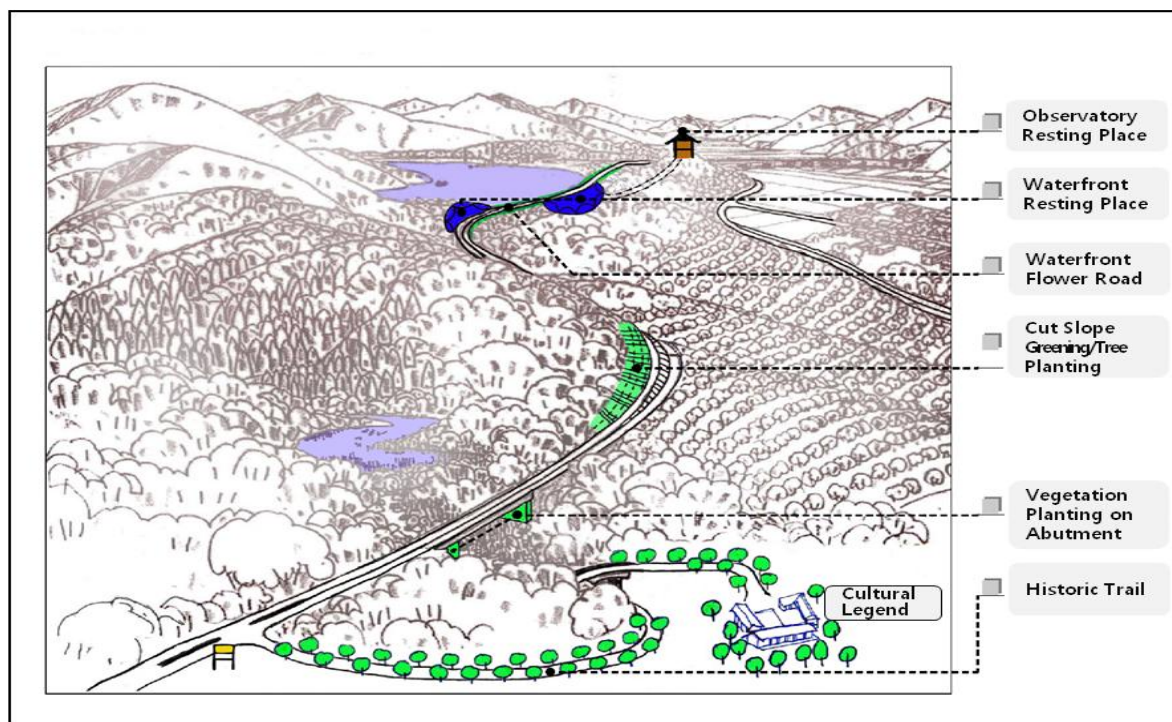


Figure 2. Concept of the Scenic Improvement of on an existing roads

2) Publishment of the Scenic Road Development Manual

The concept of scenic road has not been domestically promoted in Korea yet. Therefore there has not been a number of relevant studies. At the time of establishing the master plan, the Scenic Road

Development Manual was published to promote the Scenic Road Development Project. This manual mainly states the official's implementation of maintenance inside the road site: If related with the outside of the site, it suggests that the road agency discuss (with the associated institute) local autonomous bodies and other relevant matters. This manual covers the scenic improvement of existing roads that are already opened as its key viewpoint and also this manual could be applied to newly constructed roads.

This manual broadly consists of a system of developing the Scenic Road Project, procedures of its implementation, and selection of the subject section of project / collection & analysis of related data, along with preparation of scenic road improvement alternatives. Developing the Scenic Road Project suggests the idea of establishing a plan for scenic road types and the implementation of the project.

3) Key Points of Scenic Road Development Plan

The application forms for "the Scenic Road" were distributed to each road agency across the nation and then the subject sections were recommended after a relevant workshop was carried out. Evaluation and priority are given to the subject section of "Scenic Road" according to a certain standard of selection. In the case of national highways, the basic scenic road development plan for 31 last sections was established. The related data is delivered of the Ministry of Public Administration and Security (the general controlling department) so that it can be referred to their promoting the related project in future.

4.2 PROMOTION OF THE PILOT PROJECT FOR "SCENIC ROADS"

1) Implementation of the Scenic Road Development Pilot Project

17 sites of the Scenic Road Development Pilot Project, ones that showed a higher priority of the national roads, are selected. In selecting the subject point of the Pilot Project a consideration is given according to the classification of scenic road types in this study (green scenery, waterfront scenery, history/cultural scenery, human living scenery). They are classified into 10 sub-types (see Fig. 1). Of the 17 sites, traditional scenery and community scenery were omitted making 8 sub-types. In addition, a consideration was given to each pilot project section being chosen per province if possible (total 8 sections).

2) Assessment of Scenic Road Development Pilot Project

It is the current plan to primarily carry out the Scenic Road Development Pilot Project based on the master plan established and then continue expanding it in the future. For this, it is necessary to evaluate the effect of the pilot project so as to accomplish efficient operation and improvement of the scenic road development project.

To do this, the MLTM intends to develop the methodology of evaluating the effect related with the Scenic Road Development Project on Korean national highways. The goal is to carry out the implementation design review/effect evaluation on the pilot project, and subsequently prepare the method of improving the future of scenic road development. Data collection and foundation

(examination before, during and after the construction) are being carried out for the purpose of evaluating their effects in relation to national highway route 77 in Taeon with rural scenery and national highway route 19 in Namhae with coastal scenery. This project took place in 2008. And in the future it will expand to other pilot project sections.

Table 5. Major Activities of Scenic Road Development Pilot Project (1st Implementation) Section

Type of Scenic		Area (National Hwy. No)	Route Length (km)	Major Activities
Green Scenic	Rural Area	Taeon, Chungnam (Route 77)	11.5	<ul style="list-style-type: none"> - Improving scenery at residential areas and crossway sections: maintenance of disqualified signboards, partially shielded street planting - Maintenance of by-pass roads at Anmyeon-eup: street planting in the banked slope - Improving the parking lot in the natural forest resort - Installing regional symbols (intersection at the entrance of Kkotji Beach) - Underground cables for electric and telephone lines
Waterfront Scenic	Coast	Namhae, Gyeongnam (Route 19)	5	<ul style="list-style-type: none"> - Street planting in the residential area - Maintenance of Noryang Park: improvement of resting facilities and observation platform - Environment-friendly maintenance of the structural material: greening retaining wall and anchorage of the entry (southern part), and abutment sections - Installing the scenic lighting facility at Namhae Bridge - Improving the channelization of the at-grade intersection at the northern part - Improving the scenic view of the crossway (northern part) section: Tree-planting on the cut slope and installation of a flower bed in front of the northern resting area

5. RECOMMENDATION OF DEVELOPING SCENIC ROAD

Road is required to be built in such a manner of preserving the ecosystem-providing environment friendly and pleasant surroundings combined with local community and human oriented conditions as well as simply being function oriented. In order to meet such requirements, it will be necessary for road managers and related technical experts to convert their consciousness about road construction. They should have broad sympathy amongst themselves so that they may pursue the construction of beautiful roads beneficial to both human and nature with excellent scenery and environments. This will naturally absorb drivers and pedestrians. For the existing roads in public use, it is essential to establish the development plan including the project of installing waterfront resting places, observation platforms and small resting areas. The roads located in these areas will have excellent scenery so that the users can feel the road space in mental comfort rather than simply using it for driving purpose.

The construction and maintenance of the Scenic Road should be carried out consistently and examples of success and failure must be explored so that future directions can be improved through a variety of further studies. In addition, it is necessary to prepare and utilize 'the Roadscape Design

Manual' to help consider and design the roadscape basically from the road construction phase (rather than the stage of maintenance for the existing road).

From the aspect of efficient operation and improvement of the scenic road project, it is necessary to promote and establish the developmental model of Scenic Roads for area activation connections along with research & development of scenic road related technology and the assessment of its effect. Moreover, it is essential to advertise the contents of scenic road project and nationwide scenic roads so that they can be recognized as one of SOC facilities familiar to and liked by people across the nation. And furthermore it requires building and operating the scenic road management and promotion system-such as computer management, an internet homepage, and a variety of promotional leaflets to enhance usability.

Scenic roads require networking linked with cultural/sightseeing resources within and around the area including the road itself and how to accomplish and operate it in a valid manner. For this, it is necessary to exert efforts to create the space where people can drive, walk and stay together with beautiful nature and history/culture through cooperation amongst a variety of local and national agencies.

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